

**XVII.** *Observations on some Causes of the Excess of the Mortality of Males above that of Females.* By Joseph Clarke, M. D. Physician to the Lying-in Hospital at Dublin. Communicated by the Rev. Richard Price, D. D. F. R. S. in a Letter to Charles Blagden, M. D. Sec. R. S.

Read March 30, 1786.

S I R,

Newington-Green, February 6, 1786.

I RECEIVED some time ago the inclosed letters and registry from Dr. CLARKE, Physician to the Lying-in Hospital at Dublin. They contain some accounts that seem to me not improper to be communicated to the Royal Society.

The observations which have been made on the laws that govern human mortality prove, that the mortality of males exceeds that of females in almost all the stages of life, and particularly in the earliest stages; and that this excess prevails most in great towns, and all the less natural situations of human life. The facts in these papers throw some light on this subject. Male *fætus's* requiring more nutrition than female *fætus's*, because larger, and being also for this reason more liable to injury in delivery, are brought into the world less perfect: and this happening more or less in proportion to the vigour and just formation of the mother, it must happen most in those situations where the greatest tenderness of frame and deviations from nature take place. The truth, in  
 short,

short, seems to be, that any debility in *either* parent must affect most the production of that sex which requires the largest and strongest *flamina*; and that such debilities prevailing most in great towns and polished Societies, the excess of the mortality of males must also be greatest in such situations. And this I reckon the principal reason of a circumstance in human mortality which, before I received these communications from Dr. CLARKE, I did not so well understand.

With much respect I am, &c.

RICH. PRICE.

*Dr. CLARKE's first Letter to the Rev. Dr. PRICE.*

S I R,

Dublin.

IN your very useful Treatise on Life Annuities, &c. you remark \*, that “ it has been observed, that the Author of  
 “ nature has provided, that more *males* should be born than  
 “ females, on account of the particular waste of males, occasioned by wars and other causes. That perhaps it might  
 “ have been observed, with more reason, that this provision  
 “ had in view that particular weakness or delicacy in the constitution of males which makes them more subject to mortality; and which, consequently, renders it necessary that  
 “ more of them should be produced, in order to preserve

\* Vol. I. p. 373.

“ in

“in the world a due proportion between the sexes.” And further, you elsewhere remark\*, that “the *facts* recited at the end of your fourth Essay *prove*, that there is a difference between the mortality of males and females; but that you must however observe, that it may be *doubted*, whether this difference, so unfavourable to males, be *natural*; and that there are facts which prove that you have reason for such a doubt.” After stating a number of very satisfactory facts of this kind you remark, that “the inference from them is very obvious; that they seem to shew sufficiently, that human life in males is more brittle than in females, only in consequence of adventitious causes, or of some particular debility which takes place in polished and luxurious societies, and especially in great *towns*.”

What those adventitious causes are, or how this particular debility is produced and operates, are questions which appear to me highly interesting and curious. I have therefore been at considerable pains to examine and arrange a very accurate and extensive registry in such a manner as I hope will throw some light on these questions. As it is to the accuracy of modern registers that we are originally indebted for our knowledge of the facts in question, I apprehend, it is from the same source only that we shall be enabled satisfactorily to explain them.

Of the registry inclosed, I beg leave to observe to you, Sir, that it has been kept from its commencement by a man of uncommon accuracy (one of the under-clerks of our House of Commons); and that as the poor women and their children are obliged to pass through his office, before leaving the Hospital, his situation is such that there is no likelihood of his being deceived. It exhibits to our view the occurrences of 28 years

\* Vol. II. p. 247.

in above 20,000 instances: a number which I am inclined to think can hardly appear insufficient for establishing some general inferences and conclusions on a tolerably sure foundation. Although my reasoning on these matters should not appear very conclusive, or my calculations perfectly accurate, yet I flatter myself, that the facts will neither be unacceptable nor useless to you.

I believe it may be safely asserted, that anatomy has not hitherto detected any internal difference between the animal œconomy of the male and female, which can be supposed to account for their difference of mortality, more especially in early Infancy; and this (it deserves to be particularly remarked) is the period during which the chances are much the greatest against male life. It is a matter of common observation that *males, cæteris paribus*, grow to a greater size than females, both *in utero* and every subsequent period of their growth. Consequently, they must meet with more difficulty, and endure more hardship and fatigue, in the hour of birth. Accordingly, practitioners in midwifery, taught by experience, know, that when any considerable difficulty occurs in the birth of a child (for example, in all the different kinds of preternatural labours) they stand a much better chance of saving the life of a female than of a male. It is on this principle we can explain what our registry concurs with others in proving, *viz.* that near one-half more males than females are still-born. Naturalists are agreed, that the head of the human foetus is larger in proportion to its body than that of any other animal; and I believe it is certain, that no animal whatever brings forth its young with so much difficulty, pain, and danger, as a woman. Now as we know that the head contains one of the most important organs of the body to life, it is highly reasonable to suppose, that any  
additional

additional injury which it sustains in delivery may produce very material effects on the whole system. These effects though often may not be always immediate. They may operate in weakening the male constitution so as to render it more apt to be affected by any exciting cause of disease soon after birth, and less able to struggle against it. It may be asked, how this will apply to the difference of mortality in great towns and country situations? The answer evidently is, that in great towns rickets, scrophula, and other diseases affecting the bones, and producing consequent mal-conformation of the female sex, are more frequent than in healthy country situations.

There is another circumstance, Sir, which may have some influence in producing that particular *debility* which you mention. It is this: as the stamina of the male are naturally constituted to grow to a greater size, a greater supply of nourishment *in utero* will be necessary to his growth than to that of a female. Defects in this particular, proceeding from delicacy of constitution or diseases of the mother, must of course be more injurious to the male sex. And although the male children may be so lucky as to escape abortion and the perils of delivery, it is probable, that they will be more apt to languish under disease, or die at some future period, from the application of noxious causes to an originally half-starved frame. To a person little accustomed to consider physiological subjects, this reasoning may appear somewhat obscure. It may, perhaps, be somewhat illustrated by considering that nourishment of the foetus *after* birth which nature has provided for. Suppose every mother in a great city obliged to suckle and nurse her own child, *without* the assistance of spoon-meat; and every mother in the adjacent country to do the same. Of the former there would not perhaps be one *good* nurse in *five*; and of the

latter, perhaps, *not one* bad in *ten*. The difference of mortality that would ensue both to mothers and children thus situated, and the greater sufferings of the male than female sex, may be easily conceived, but not easily calculated. We see that, when a woman conceives twins, and has two *foetuses in utero* to nourish instead of one, it becomes peculiarly fatal both to her and her offspring. The chances are above four to one greater against her than against a woman bringing forth one child, and about two to one against her issue\*.

Give me leave, Sir, to call your attention a little further to the facts relating to twins. They are singular and curious, at the same time that they serve to confirm some of the preceding reasoning. Near *one-half* more twins die, and near *one-third* more are still-born, than of single children. And why?—It is not because they meet with greater difficulties in the birth. On the contrary, it is a known fact, that, being much less than other children, women bring them forth with more ease. Does it not then proceed from a scanty nutrition, by which they are oftener blighted *in utero* than single children; and, when born alive, have less strength to support life through the first stages of its existence.

It is farther worthy of observation, that though *double* the numbers of twins die and are still-born, compared to single children, yet the proportion of male twins lost to females is *less*. Only one-fifth more of the male sex die than of the female, and only one-third more is still-born. Whereas of single children, whose proportional mortality is one-half less, *one-fourth* more of the male sex die, and near double the number is still-born. To what then are we to attribute this lessened mortality in favour of male twins? Probably to their brain and

\* Compare the 7th and 14th, 6th and 13th inferences in the annexed extracts.

nervous system suffering less during delivery, on account of their heads being much smaller than those of single children. Were I disposed to be prolix, I could offer many more plausible arguments on this subject; but to you, Sir, I am sure they would be unnecessary. There is only one circumstance remaining, relative to the proportion of the sexes, which I cannot pass over in silence. We see evident wisdom in the creation of a greater number of males than females; but why the proportion they bear to each other differs in different countries and situations, and why there should be a seventeenth more males born of single children than twins, are questions which I leave to be decided by those philosophers who understand the theory of generation better than I do. Be this as it may, I am convinced that the majority in favour of the male sex is sooner destroyed than the generality of writers seem to be aware of. Did the limits of this letter permit, I think, I could prove from Dr. SHORT's own data\*, that the majority of males is destroyed long before the common marriageable period; but I shall content myself with an observation or two on the registry before us. If one-half of the whole born in this hospital die before three years, which is the established computation for great cities; and if, on the loss of somewhat more than a *third* of this half, a majority of 1177 be reduced to 483 by a loss of 694, as appears from the registry, it is pretty evident, that by the death of the two remaining thirds, a majority will be left in favour of the female sex. It is obvious, that the statement with regard to twins corroborates this supposition; for of them, instead of a fifth, there is near one *half* dead and still-born, the consequence of which is, that we send out a majority of females. It may be objected, that their males do

\* New Observations, p. 72. et seq.

not bear so great a proportion to the females; and that, therefore, it is not to be expected they should keep up their majority so long. But there is only a seventeenth fewer males produced; whereas it has been already shewn, that there is a much greater proportion between the deaths of single and twin males against the former and in favour of the latter.

Such are the outlines, Sir, of my sentiments on this subject. I have assumed the liberty of addressing them to you without ceremony, as a well-wisher to every member of the republic of letters. I shall be happy, should your sentiments happen to coincide with mine, or if I can be of any farther service in promoting your very laudable inquiries.

I am, Sir, with great respect, &c.

JOSEPH CLARKE.

Lying-in Hospital,  
June 9, 1785.

*Dr. CLARKE's second Letter to the Rev. Dr. PRICE.*

S I R,

Dublin, Oct. 22, 1785.

ENCOURAGED by your approbation of my former letter, I will take the liberty of stating to you a few more facts and observations, which I hope you will judge an Appendix to it of some importance.

With the view of ascertaining how far some of the foregoing conjectures are well founded, and of determining with  
greater



greater precision the more obvious differences between the male and female sex in infancy, I began in the month of July last by weighing forty children, twenty of each sex, and by taking the dimensions of their heads. In the months of August and September I repeated the same experiment twice, taking such children as appeared to have arrived at the full period of gestation promiscuously as they happened to be born.

I weighed them all a few hours after birth, before they had taken food, and before purgative medicines had time to operate. For this purpose, I made use of a small spring or pocket steelyard, which weighs any thing (not heavier than a few pounds) appended to it with sufficient accuracy. To this was attached a flannel bag, into which the children were put, at first, naked; but this I soon found very troublesome. The nurses often wanted time sufficient to assist me, and timid mothers were afraid of their infants catching cold; I was therefore obliged to weigh them with their cloaths on, and to subtract a certain quantity from the gross weight of each child, according as it was full, middling, or light cloathed. Whatever inaccuracy this may have introduced, as to the real weight of the children, it can but little influence their comparative weights, or the differences between the two sexes, which it was my object to ascertain.

For measuring their heads, I made use of a piece of painted or varnished linen tape, divided into inches, halves, and quarters. The varnish has the good effect of preventing the length of such a measure being readily affected by variations in the humidity of the atmosphere, &c.; and it has little or no elasticity. In this part of the experiment then I can pretend to considerable accuracy. I took first the greatest circumference of the head from the most prominent part of the occiput around over the frontal sinuses; and, secondly, the transverse dimension.

dimension from the superior and anterior part of one ear, across the fontanelle, to a similar part of the opposite ear. These dimensions appeared to me the most likely to afford data for determining the respective sizes of the brain in the different sexes. The result was as follows :

Twenty males.			Twenty females.		
Weight.	Circumference	Dimensions	Weight.	Circumf.	Dimen. from
lbs. &c.	of heads.	from ear to ear.	lbs. &c.	of heads.	ear to ear.
	Inches.	Inches.		Inches.	Inches.
Experiment 1.					
149 $\frac{1}{2}$	282	152	137 $\frac{1}{4}$	272	143
Experiment 2.					
144 $\frac{1}{2}$	277	146 $\frac{1}{4}$	135	272	147
Experiment 3.					
148	280	147 $\frac{1}{2}$	132	273	143 $\frac{1}{4}$
Totals.					
442	839	445 $\frac{3}{4}$	404 $\frac{1}{4}$	817	433 $\frac{1}{4}$
Average weight, &c.					
7 lbs. 5 oz. 7 dr.	14	7 $\frac{1}{4}$	6 lbs. 11 oz. 6 dr.	13 $\frac{5}{8}$	7 $\frac{3}{8}$

Having found the relative proportions between the sexes to turn out thrice with so much uniformity, and observing them to correspond pretty nearly with some experiments, made for very different purposes by the late Professor ROEDERER, of Gottingen, I did not think it necessary to prosecute the subject farther.

Upon the whole, it may be observed, that the difference of weight between the male and female at birth may be rated at about nine ounces, or nearly a twelfth part of the original weight. In the circumference of their heads there is a difference of near half an inch, or about a 28th or 30th part ; and the same proportion of a 28th is pretty nearly preserved in the transverse dimension. It is evident, as the bony passage through

through which infants pass is of a certain determined capacity, that, were their heads equally incompressible with those of adults, the difference of half an inch in their size would often prove fatal to them. By the compressibility of their heads, however, in *well formed* women, this difficulty is by time surmounted. The effects which such a compression on the *brain* may produce, have not hitherto been well attended to.

In reckoning children, weighing from  $5\frac{1}{2}$  to  $6\frac{1}{2}$ , 6 pounds weight, and from  $6\frac{1}{2}$  to  $7\frac{1}{2}$ , 7, and so forth, in order to avoid fractions, I find the numbers of males and females, arranged according to their weight, to stand as follow.

Males.								Females.							
lbs.	4	5	6	7	8	9	10	lbs.	4	5	6	7	8	9	10
N <sup>o</sup>	0	3	6	32	16	2	1	N <sup>o</sup>	2	9	14	25	8	2	0

Hence it appears, that the majority of males runs thus: seven, eight, six, five; whilst that of the females is seven, six, five, eight. Hence also appears the merciful dispensations of Providence towards the female sex; for when deviations from the medium standard occur, it is remarkable, that they are much more frequently below than above this standard. In 120 instances there are only five children exceeding eight pounds and a half in weight. The same may be observed with regard to the size of their heads. Only six measured above  $14\frac{1}{2}$  inches in circumference, and these all of the male sex; five measured  $14\frac{3}{4}$ , and one 15. In transverse dimensions only four exceeded  $7\frac{3}{4}$ , the largest of which was  $8\frac{1}{2}$ ; whereas deviations under the standard in these particulars were very numerous, never however under 12 around and  $6\frac{1}{4}$  across.

In the year 1753, Dr. ROEDERER published a Paper, *De pondere et longitudine Infantum recens natorum*, in the Commentaries of the Royal Society of Gottingen, of which the celebrated HALLER was the principal institutor, and long the president. In this Paper he proves, in the clearest manner, by incontestible experiments, the absurdity of the ideas of obstetric writers with regard to the progress of the ovum during gestation, and the weight of the fœtus after birth. He shews, although they state the weight of the fœtus, come to the full time, to be from 12 to 14 or 16 pounds, that it is more generally 6 or 7, and very rarely exceeds eight. This deserves particular notice for two reasons; first, because it serves to shew how little dependence is to be placed on the assertions of authors who copy each other servilely, without having recourse to experiment even in the most obvious cases; and, secondly, because this paper has been overlooked by some of the most celebrated writers and teachers of midwifery now living. What idea are we to form of the accuracy of one of our latest systematic writers, who (telling us that he has been a practitioner of midwifery, in a capital city, for twenty years, and a teacher for more than twelve) states, in one page of his work, that the weight of a fœtus at eight months is about seven pounds; and on the opposite page, that at full time it weighs from twelve to fourteen pounds\*?

Of 27 children, carried to the full period of gestation, weighed and measured in length by ROEDERER, without any attention to the difference of sex, I find, that 18 were of the male and 9 of the female sex; and that the average weight of

\* See a Treatise of Midwifery (p. 88. and 89.) divested of *technical terms and astruse theories*, by A. HAMILTON, M. D. 8<sup>o</sup> edit. London, 1781.

the former was about 6 lbs. 9 oz., that of the latter about 6 lbs. 2 oz. 2 dr. Whether he and I used the same weights, I cannot exactly say. He observes, that he used the civil pound of Gottingen, which I can easily perceive consisted of 16 ounces, as mine did; but whether a German ounce be the same with ours, I have not *data* to determine. The average length of the males measured by him is about  $20\frac{1}{3}$  inches, and of the females about  $19\frac{1}{8}$ . He weighed also the placenta of 21 lying-in women, 16 of whom had borne male children, and five female. The average weight of the former was 1 lb.  $2\frac{1}{2}$  oz.; that of the latter 1 lb. 2 oz. Hence it appears, that in other circumstances, besides those I have taken notice of, the male and female sex differ. So far I thought it necessary to take extracts from Dr. ROEDERER's paper, as his observations and mine throw light on each other, and add confirmation to both.

The limits of this letter will not permit me, Sir, to trespass much farther on your patience. There is one circumstance or two so intimately connected with my former letter, that I cannot pass them over in silence. Having found that males suffer more in the birth than females, I was desirous of knowing whether the chance of the mother's recovery was thereby in any degree affected; and to determine this I was once more at the pains of turning over our registry with care. I found, that of 214 women, dead of single children, 50 were delivered of still-born males, and 15 of still-born females; 76 of living males, and 73 of living females. Of the 15 dead of twins, 6 had twins one of each sex; 6 others had twins both of the male sex; and three had twins both of the female sex. All of which twins (two or three excepted), it is very remarkable, survived the death of their mothers. It would appear then, that the life of the mother is principally endan-

gered in those cases where the bulk of the male's head precludes the possibility of his being brought into the world alive, either by the efforts of nature or art. The conception of twins we have observed to be more fatal to the mother than that of single children. The average weight of 12 twins, which have occurred to me of late, I find to be 11 lbs. a pair. The largest pair weighed 13 lbs. and the least  $8\frac{1}{2}$ . From some rude attempts made to ascertain the weight of the contents of the gravid uterus in cases of twin and single children, I am inclined to think, that they are to each other as about 15 to 10, or perhaps  $14\frac{1}{2}$  to  $9\frac{1}{4}$ .

Believe me, Sir, with great respect, &c.

J. CLARKE.

An Abstract of the Registry kept at the Lying-in Hospital, in Dublin, from the 8th of December, 1784. By B. H. Register.

		Number of Patients admitted	Went out not delivered	Delivered in the Hospital.	Boys born.	Girls born.	Total number of children.	Women having twins.	C
From 8th to 31st of December,	1757	- 55	- -	- 55	- 30	- 25	- 55	- -	-
	1758	- 455	- 1	- 454	- 255	- 207	- 462	- 8	-
	1759	- 413	- 7	- 406	- 228	- 192	- 420	- 13 1 had 3	-
	1760	- 571	- 15	- 556	- 300	- 260	- 560	- 4	-
	1761	- 537	- 16	- 521	- 283	- 249	- 532	- 11	-
	1762	- 550	- 17	- 533	- 279	- 266	- 545	- 12	-
	1763	- 519	- 31	- 488	- 274	- 224	- 498	- 12	-
	1764	- 610	- 22	- 588	- 287	- 308	- 595	- 7	-
	1765	- 559	- 26	- 533	- 288	- 251	- 539	- 6	-
	1766	- 611	- 30	- 581	- 324	- 261	- 585	- 4	-
	1767	- 695	- 31	- 664	- 373	- 301	- 674	- 10	-
	1768	- 689	- 34	- 655	- 362	- 302	- 664	- 9	-
	1769	- 675	- 33	- 642	- 350	- 301	- 651	- 9	-
	1770	- 705	- 35	- 670	- 372	- 305	- 677	- 7	-
Year ending 31 of December,	1771	- 724	- 29	- 695	- 370	- 341	- 711	- 16	-
	1772	- 725	- 21	- 704	- 368	- 344	- 712	- 8	-
	1773	- 727	- 33	- 694	- 367	- 344	- 711	- 17	-
	1774	- 709	- 28	- 681	- 357	- 334	- 691	- 10	-
	1775	- 752	- 24	- 728	- 364	- 378	- 742	- 14	-
	1776	- 883	- 31	- 802	- 418	- 407	- 825	- 22 1 had 3	-
	1777	- 872	- 37	- 835	- 452	- 395	- 847	- 12	-
	1778	- 961	- 34	- 927	- 476	- 460	- 936	- 9	-
	1779	- 1064	- 53	- 1011	- 550	- 476	- 1026	- 15	-
	1780	- 967	- 48	- 919	- 499	- 441	- 940	- 21	-
	1781	- 1079	- 52	- 1027	- 598	- 447	- 1045	- 18	-
	1782	- 1021	- 31	- 990	- 549	- 458	- 1007	- 17	-
	1783	- 1230	- 63	- 1167	- 632	- 553	- 1185	- 17 1 had 3	-
	1784	- 1317	- 57	- 1260	- 642	- 640	- 1282	- 23	-

1 of December, 1757,

men living wins.	Children dead.	Children still-born.
-	6	3
8	54	21
13 had 3	95	22
4	116	36
11	104	29
12	106	33
12	94	29
7	83	28
6	94	25
4	111	18
10	125	29
9	154	47
9	152	38
7	107	37
16	102	44
8	116	32
17	136	31
10	154	25
14	122	27
22 had 3	132	39
12	145	34
9	127	31
15	146	51
21	115	4
18	121	3
17	127	5
17 had 3	91	7
23	76	6



	1783	- 1230	- 63	- 1167	- 632	- 553	- 1185	- 17 1 had 3
	1784	- 1317	- 57	- 1260	- 642	- 640	- 1282	- 23
Totals	20625	839	19786	10647	9470	20117	331	

Proportion of males and females born, about *nine* males to *eight* females.  
children dying under *sixteen* days old, as *one* to about *six* and  
children still-born, as *one* to about *twenty*.  
women having twins, as *one* to about *sixty*.  
women dying in child-bed, as *one* to about *eighty-seven*.

33 <sup>1</sup>	3111	100
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ales.

*fix and a half.*

*n.*

Extracts from the Registry kept at the Lying-in Hospital, Dublin, from

**Uniparous.**

## Multipa

Women.			Children.					Women.		
Delivered in Hospital.	Dead.	Sex.	Dead.		Still-born.		Delivered in Hospital.	Dead.		
		M.	F.	M.	F.	M.	F.			
19455	214	10305	9150	1656	1247	602	351	33	15	
		9150		1247		351				
		<hr/>		<hr/>		<hr/>				
		19455		2903		953				
				953						

Total 3856 dead and still born.

### Inferences.

1.	Proportion of males to females born nearly as	17 to 15
2.	children dying under 16 days	1 to $6\frac{2}{3}$
3.	children still-born	1 to $20\frac{2}{5}$
4.	males dying to females	4 to 3
5.	still-born to ditto	12 to 7
6.	still-born and dead of each sex to the whole	1 to 5
7.	women dying in child-bed	1 to 92

### Inferences.

8.	Proportion of male tv
9.	twins d
10.	twins fl
11.	male tv
12.	
13.	still-bor
14.	women

**Totals of dead and still-born.**

Maes.	Females.
1656	1247
602	351
<hr/>	<hr/>
2258	1598

Born in hospital	10305	9150
Dead and still-born	2258	1598
	<hr/>	<hr/>
Sent out living	8047	7552
	7552	

Balance 495 in favour of the male sex.

**Totals of dead and still-born whether  
uniparous or multiparous.**

Males.	Females.
1656	1247
116	91
602	351
29	20
<hr/>	<hr/>
2403	1709

Born	10647	9470
	2403	1709
	<hr/>	<hr/>
	8244	7761
	7761	

Of 20117 children born, at the end of a fortnight, there is only a balance of 483 in favour of the male sex, although

, from the year 1757 to 1784.

Multiparous, Twins, Triplets, &c.  
Children.

Sex.		Dead.		Still-born.	
M.	F.	M.	F.	M.	F.
342	320	116	91	29	20
320		91		20	
<u>662</u>		<u>207</u>		<u>49</u>	
		49			

Total 256 dead and still-born.

f male twins to females born	.	.	17 to 16
twins dying under 16 days	.	.	1 to $3\frac{1}{2}$
twins still-born	.	.	1 to $13\frac{1}{2}$
male twins dying to females	.	.	5 to 4
— — — still-born to ditto	.	.	3 to 2
still-born and dead of each sex to the whole			1 to $2\frac{1}{2}$
women dying	.	.	1 to 22

Totals of twins, &c. dead and still-born.

	Males.	Females.
	116	91
	29	20
	<u>145</u>	<u>111</u>
Born	342	320
Dead and still-born	<u>145</u>	<u>111</u>
Sent out living	197	209
		<u>197</u>

Balance in favour of the female sex 12

Although originally 1177; greater loss of males 694.

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31st of December, 1784. By B. H. Register.

		Number of Patients admitted	Went out not delivered	Delivered in the Hospital.	Boys born.	Girls born.	Total number of children.	Women having twins.	Children dead.	Children still-born.
From 8th to 31st of December,	1757	55	-	55	30	25	55	-	6	3
	1758	455	1	454	255	207	462	8	54	21
	1759	413	7	406	228	192	420	13 1 had 3	95	22
	1760	571	15	556	300	260	560	4	116	36
	1761	537	16	521	283	249	532	11	104	29
	1762	550	17	533	279	266	545	12	106	33
	1763	519	31	488	274	224	498	12	94	29
	1764	610	22	588	287	308	595	7	83	28
	1765	559	26	533	288	251	539	6	94	25
	1766	611	30	581	324	261	585	4	111	18
	1767	695	31	664	373	301	674	10	125	29
	1768	689	34	655	362	302	664	9	154	47
	1769	675	33	642	350	301	651	9	152	38
	1770	705	35	670	372	305	677	7	107	37
Year ending 31 of December,	1771	724	29	695	370	341	711	16	102	44
	1772	725	21	704	368	344	712	8	116	32
	1773	727	33	694	367	344	711	17	136	31
	1774	709	28	681	357	334	691	10	154	25
	1775	752	24	728	364	378	742	14	122	21
	1776	883	31	802	418	407	825	22 1 had 3	132	31
	1777	872	37	835	452	395	847	12	145	31
	1778	961	34	927	476	460	936	9	127	31
	1779	1064	53	1011	550	476	1026	15	146	51
	1780	967	48	919	499	441	940	21	115	4
	1781	1079	52	1027	598	447	1045	18	121	3
	1782	1021	31	990	549	458	1007	17	127	5
	1783	1230	63	1167	632	553	1185	17 1 had 3	91	7
	1784	1317	57	1260	642	640	1282	23	76	6
Totals		20625	839	19786	10647	9470	20117	331	3111	100

Proportion of males and females born, about *nine* males to *eight* females.  
 children dying under *sixteen* days old, as *one* to about *six and a half*.  
 children still-born, as *one* to about *twenty*.  
 women having twins, as *one* to about *sixty*.  
 women dying in child-bed, as *one* to about *eighty-seven*.

Inferences.			Inferences.		
1.	Proportion of males to females born nearly as	17 to 15	8.	Proportion of male twins to females born	17 to 16
2.	children dying under 16 days	1 to $6\frac{2}{3}$	9.	twins dying under 16 days	1 to $3\frac{1}{2}$
3.	children still-born	1 to $20\frac{1}{2}$	10.	twins still-born	1 to $13\frac{1}{2}$
4.	males dying to females	4 to 3	11.	male twins dying to females	5 to 4
5.	— still-born to ditto	12 to 7	12.	— — — still-born to ditto	3 to 2
6.	still-born and dead of each sex to the whole	1 to 5	13.	still-born and dead of each sex to the whole	1 to $2\frac{1}{2}$
7.	women dying in child-bed	1 to 92	14.	women dying	1 to 22

Males.	Females.
16;6	1247
602	351
<hr/> 22;8	<hr/> 1598

Males.	Females.
1656	1247
116	91
602	351
29	20
<hr/> 2403	<hr/> 1709

Born	10647	9470
	2403	1709
	<hr/>	<hr/>
	8244	7761
	7761	

Males.	Females.
116	91
29	20
<hr/>	<hr/>
145	111

Born	342	320
Dead and still-born	145	111
Sent out living	197	209
		197

Balance in favour of the female sex 12

Of 20117 children born, at the end of a fortnight, there is only a balance of 483 in favour of the male sex, although originally 1177; greater loss of males 694.